“Committed to Stewardship of the Natural Resources and Heritage of a Nation”

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Research at The College of The Bahamas
The College of The Bahamas is the national higher education institution of The Commonwealth of The Bahamas. With an enrolment of almost 5000 students located throughout the Bahamian archipelago, the institution grants mostly bachelor degrees and some joint master’s degrees in conjunction with other accredited accredited institutions from the United States. The College enjoys extensive links with tertiary institutions in the Caribbean and North America, and its credits are accepted by more than 200 colleges and universities in those regions and in Great Britain. With a view to attaining a charter as a university by 2007, The College has embarked aggressively upon a major expansion of its programme offerings, research activities and physical facilities and is incorporating e-learning methodologies into its repertoire of strategies for delivering instruction.
“Research at COB: A Matter of Nation-building and Contribution to Global Stewardship”

In The Bahamas we have enjoyed the quality of life that comes with the beauty of our environment and the capacity of our resources to meet our most basic needs. We have also enjoyed the benefits of being a destination of choice for millions of citizens from elsewhere who find on our seas and in our islands beauty, warmth and the welcome of generous people. Clearly, the sustainability of our marine and environmental resources is key to the quality of life we want to build and maintain for future generations.

The College of The Bahamas plays an important part in assisting the country to ensure this sustainability through education and, increasingly, through research. We have begun our transformation from College to University and, in so doing, we have also been consolidating existing partnerships and seeking new ones which will support our quest to be both small in size and great in impact.

The Bahamas has a population of approximately 300,000, 60% of whom live in New Providence. The country’s aggregate landmass of 5,400 square miles is about the size of Wales. However, if we consider the 100,000 square miles of our territorial waters, The Bahamas is greater than the island Great Britain, the largest island in Europe. Indeed, it is almost twice the size of Spain.

Over the coming years, it is expected that there will be new developments on several of the Family Islands and that people in settlements that are currently quite isolated may find their lives dramatically altered by the presence of these new developments. It falls to us then to support these transitions with the science and the knowledge that can bring healthy sustainable development to all and to protect the resources nature has given us for the benefit of future generations.

Our land and sea are rich in biological diversity and home to a number of rare species. This is indeed why people flock to these islands to discover forms of nature that are rare and beautiful. How do we ensure the protection of these species while allowing the kinds of development required to create the quality of life our citizens expect? And how do we ensure that research carried out in our land serves the well-being of its people and communities?

These challenges can only be met through research and the development of public policies which can reconcile protection and development.

Because of its archipelagic nature, The Bahamas is also confronted by the challenges and opportunities of small island
developing states. It means that while drawing on the inherent beauties and riches of our environment as a base for economic, social and cultural development, we must contribute to the preservation and conservation of that base. Increasingly, our research efforts will be mirrored in work carried out in similar nations from Fiji to Mauritius and we hope to join forces with universities in such places, wherever our partnership can help build knowledge to serve the peoples of such nations.

Researchers must, with equal vigour, conduct investigations into matters social, cultural and economic as they have great bearing on the quality of our programmes, the success of the people who entrust their education to our care and the quality of life in the community that supports us.

As the national university designate of The Bahamas, The College of The Bahamas is mandated to engage in research and discovery, so as to provide sound data to inform national decisions. As The College of The Bahamas, rich in success and tradition for over 30 years, makes way for the arrival of The University of the Bahamas offering graduate degrees as well as the traditional undergraduate programmes, we seek to build and promote a strong research infrastructure. The creation of institutes, such as the Marine and Environmental Studies Institute within the University, underpins an institutional commitment to faculty development in research and scholarship.

We aim to build on our strengths to create a research infrastructure that will allow for the development of fruitful partnership between researchers and students within our academic community and those in other universities who might share common research interests.

Ultimately, in keeping with the tenets of our institutional and educational philosophy, the research of The College of The Bahamas will always have the welfare of the people of The Bahamas and all peoples as its raison d’être. We know, too, that the work we do to build new knowledge and to preserve and protect our precious environment is our contribution to humankind, to its heritage and to its future.
Auguring well for the future of research at the University of The Bahamas are the prospects for scholarly investigation in a country that presents unique opportunities in a plethora of areas, most especially history, archaeology, social institutions, psychology and economics. The islands of The Bahamas are members of the great family of the Americas and the Caribbean by reason of shared geography, history, migration and geopolitical ties, yet uniquely different from these relations in many important ways. Not only was our country the gateway to the encounter of several civilizations, it comprises an archipelago with fascinating geological features and marine and terrestrial flora and fauna, many rare and even unique. Our islands demonstrate linguistic gradations that present opportunities for much investigation. Of especial importance is the fact that The Bahamas operates tourism, hospitality and financial services industries that are significant on a global scale. What adds to an already fruitful research matrix is the excellent relationship The College of The Bahamas, as the national tertiary educational institution, enjoys with entities in these industries and the public sector. This is a potent mix for much fruitful investigation that would be applicable to other jurisdictions and The College is open to partnerships with other institutions.
The Marine and Environmental Studies Institute was created in 2005 to be a multi-disciplinary, research unit within The College of The Bahamas. MESI is administered by an Executive Director with a direct report to the Vice President of Graduate Programmes, Research and International Relations.

MESI works with the academic units within COB to meet national needs in scientific and technical research, filling critical information gaps. A key goal is the development of research capacity in science, technology and community health, with a concomitant goal of information synthesis and dissemination.

The Institute is designed not only to build the national capacity for research and monitoring of marine and environmental resources, but also to provide policy options for natural resource management. Consequently, MESI also focuses on the development of partnerships with both Government Ministries and international research institutions as a critical component for building internal research scholarship and capacity.

The Institute will provide leadership in programme development and research initiatives so as to take full advantage of The College/University’s location in a small island state and year-round access to the unique sub-tropical ecosystems of the coastal, coral reefs, mangrove and sea grass communities in The Bahamas.
**Project Title:** Sustainable Science for Island Life Demonstration Unit for Sciences, Technology and Agricultural Research (DUSTAR) on the Oakes Field Campus of The College of the Bahamas

**Funding Agency:** Baker's Bay

**Duration:** One year

DUSTAR is based on the idea that science needs to be tangible and accessible to a new generation of Bahamians in order to sensitize them to the issues of island resource management and carrying capacity, as relates to quality of life and cost of living. DUSTAR will provide a facility on the Oakes Field Campus of The College of The Bahamas that uses new alternatives for composting solid waste and sewage and advanced permaculture techniques with applications to large scale agricultural projects, individual homes and community gardens. This site will put the “reduce, reuse and recycle” theory into practice. The general scientific principles in chemistry, biology and physics will be presented at the DUSTAR in a small class and laboratory environment.

**Project Title:** Environmental and Ecological Impact Assessment, Management and Reporting for Bonds Cay, Berry Islands, The Bahamas

**Funding Agency:** Bonds Cay Development

**Start Date:** January 5, 2006

**Duration:** Two years

Bonds Cay is a privately-owned, uninhabited cay in the Berry Islands. The vision for Bonds Cay is to develop a private residential resort and artist community with invited membership. The fragile nature of the island and its open exposure to storm energy requires a specific focus on environmental issues of shoreline stability, beach protection, coastal buffer zones and wetland conservation.

**Project Title:** Environmental and Ecological Assessment of the Coastal Resources of the Northern Windermere Island Environs and Development of a Coastal Resource Management Plan for Windermere Island, Eleuthera, The Bahamas

**Funding Agency:** Windermere Island North Development (WIND)

**Start Date:** May 1, 2006

**Duration:** Two years

Windermere is an outlying island of Eleuthera that is inhabited and protects embayment dominated by mangrove shorelines. The goal of WIND is to develop the northern coastal areas of the island. Research is focused on the documentation and assessment of the impact of coastal restoration work with respect to the health of coastal resources including plants, fishes, benthic invertebrates and turtles. Additional emphasis is placed on the development of an Environmental Management Plan to include reporting on the short term and chronic impacts of planned development.

**Project Title:** Environmental and Ecological Assessment of the Coastal Resources for the Half Sound and Quarter Sound Environs, Eleuthera, The Bahamas

**Funding Agency:** EPIC Development

**Start Date:** October 1, 2006

**Duration:** Two years

Half Sound is composed of coastal uplands and wetlands that surround a bay in south Eleuthera. The developers intend to create a marina, arts complex and housing in the area. Research
will document proposed mitigations, estimate potential impacts and establish guidelines for monitoring concerning critical natural habitats and coastal protection with regard to development. From these studies, an Environmental Management Plan (EMP) will also be created.

**Project Title:** The Clifton Heritage Authority Parks as a Demonstration Site for Sustainable Science in Island Living

**Funding Agency:** Clifton Heritage Authority  
**Start Date:** December 1, 2006  
**Duration:** Two years

This project is in collaboration with the Clifton Heritage Authority to establish parks as a learning site for: energy, environments and technology; best practices in coastal ecology and management of pollutants; and, “integrative interpretation” through art, science and community stewardship.

**Poultry Research Unit (PRU)**  
As part of a Sustainable Science Initiative (SSI), the Poultry Research Unit is a long-term project of the Marine and Environmental Studies Institute, which operates a fully automated broiler production system. PRU carries out research and training programmes focused on sustainable broiler production for The Bahamas. The Unit focuses on sustainable tropical island agriculture and allows avenues for collaboration with counterparts with similar concerns or research foci and fundraising.

The College of The Bahamas completed construction of the first phase of PRU in mid-2004 with the generous funding provided through the Freedom Foundation and is located on a three-acre lot provided by the Ministry of Agriculture at the Gladstone Road Agricultural Centre, New Providence, Bahamas.

**An Excellent Situation for Research in Broiler Production**  
The Bahamas is an excellent locale in which to conduct research in poultry production. Broiler production is critical to providing both locally-grown food as well as economic opportunities in the agriculture sector. There is a tremendous demand for chicken within the country, but about 70% of the local demand is imported. A conservative estimate of local consumption is 100 pounds or 25 chickens per person per year. This translates to a family of four consuming about two chickens per week; or an annual consumption of seven million chickens in The Bahamas, this does not include consumption by tourists.

Historically, poultry production has been carried out on the extreme scales:  
1) Large farms with over 10,000 birds produced per week  
2) Very few small farms with fewer than 1000 per week, and  
3) Subsistence farming by local households.

**Goals of PRU**  
Through the Poultry Research Unit, COB is committed to  
- developing better small production models to improve the nutritional value of broiler chickens and reduce the environmental impacts of intensive poultry farming  
- producing case studies, outreach materials and scientific publications that address the technical economic and environmental impacts of broiler farming in The Bahamas and may prove useful to programmes in other small island states.
The production capacity of the PRU is approximately 24,000 chickens in a six-week cycle, utilising a tunnel-ventilation/evaporation cooling system when operating fully staffed. Using seven workers, a batch processing facility permits the processing of about 800 chickens per day. This facility provides a hygienic environment for processing and waste treatment through an adjacent septic system. There is no comparable facility available in The Bahamas. The implementation of the batch processing facility is part of the longer-term development plan of the PRU to look at the overall poultry production process for raising chickens to marketing a high-end product.

**Future Developments at PRU**

An additional phase to the PRU will be the incorporation of a compost system to create a closed cycle of production where all chicken waste, including dead chickens, viscera from post processing, including manure, will be broken down in an intensive composting process to produce soil-like humus that can be utilised in sustainable crop production.

**Outreach and Educational Programmes**

A recent outreach programme involved the participation of six public schools, which purchased day-old chickens from the PRU for use in school broiler production projects. Participating groups were responsible for the construction of poultry units to address poultry husbandry housing systems and environmental concerns. All the houses were an estimated 15’ x 15’, using natural ventilation. The revenue from the sale of chickens was earmarked for future cycles of chicken production.

**Opportunities for Field Studies**

The Marine and Environmental Studies Institute provides opportunities for student involvement in field studies. Students may be hired in work-study positions on various projects and required to travel to remote sites to conduct field research.
Managing Natural Resource Information of the Nation

The Bahamas National GIS Centre has advocated a partnership approach to the development, maintenance and sharing of GIS data layers for The Bahamas. Natural resource information presents a unique type of spatial information. Natural resource data sets include:

- Land cover classification and vegetation community maps
- Seafloor mapping of shallow water marine habitats
- Locations of important natural features such as blue holes, caves and mangrove creeks
- Locations of important national parks and designated wildlife reserves, and
- Critical wildlife areas such as turtle nesting beaches, fish spawning aggregations and bird nesting areas.

The resolution needs of natural resource data are often not as rigorous as other data sets that may include infrastructure location and property boundaries. Natural resource mapping is likely to be synoptic in scale and scope, covering the entire archipelago as one ecological unit.

The College of The Bahamas Faculty of Pure and Applied Sciences working with the Marine and Environmental Studies Institute (MESI) have set up a GIS laboratory focused on the natural resource mapping of The Bahamas. The basic data layers are presented in a standard ARC-GIS format with metadata to be shared with collaborating Bahamian government ministries and organizations.
Sample Projects

**State of the Coasts in The Bahamas**

The Coastal Ecology Project focuses on the health of the coastal zone by creating a spatial dataset of 1) physical alterations of the shoreline, 2) density of coastal development, 3) loss of coastal vegetation and 4) density of invasive plant species such as Australian pines. The resulting maps show areas where near shore marine resources (corals) may be impacted by coastal development.

**National Queen Conch Survey**

Marine habitat maps are being developed for the Department of Fisheries. These maps will be used in a field survey of conch populations.
The Gerace Research Centre (GRC), formerly the Bahamian Field Station, is located on the shore of Graham’s Harbour on the north coast of the island of San Salvador in The Bahamas. The centre has been in operation since 1971 and offers facilities for students, professors, and researchers from around the world to study in a tropical environment. Since 1972, under the auspices of the Gerace Research Centre, scientists from all over the world have been conducting research on San Salvador in Archaeology, Biology, Geology, and Marine Science.

**Facilities**
The GRC has 15 buildings on 8 acres of land that provide:
- Accommodation for 200 people
- Motel-type rooms for faculty, most with WiFi access and available air conditioning
- Semi-private rooms for graduate students
- Dormitory housing for undergraduate students
- Full service Cafeteria serving three meals daily (including vegetarian dishes)
- 10 Laboratory / Classrooms, 5 with air conditioning
- 2 Large Lecture Rooms with air conditioning
- A Library with air conditioning, computers, and internet access
- A Specimen Repository
- A Wet Lab with sea water aquaria
- Basketball and Volleyball courts

**Equipment**
The centre provides the following basic equipment for researchers and groups:
- Vehicles for transporting researchers and students
- Fully captained power boat (for small fee)
- Canoes
- SCUBA tanks (for daily rental)
- Snorkeling gear (for daily rental)
- Basic field and laboratory equipment

**Contact Information**
Website: http://www.geraceresearchcenter.com
For information on research conducted at GRC: http://www.geraceresearchcenter.com/researchprojects.htm
Bahamas Environmental Research Centre (BERC) is an evolving ‘non-profit’ research and education centre located in Staniard Creek, Central Andros. It was founded in 1995, as a collaborative effort of The College of The Bahamas (COB); George Mason University (GMU), USA; and the people of Central Andros - in particular the settlement of Staniard Creek. BERC supports and facilitates teaching, research in the marine, terrestrial, social and cultural environments and community outreach initiatives and facilitates the research of The College of The Bahamas faculty and students.

Its focus is to promote a better understanding and appreciation of the ecology of The Bahamas, in particular the Island of Andros, through the conduct of research and the dissemination of research findings.
The College of The Bahamas has developed the National Policy Research Fellowship Awards Programme (NPRFAP) as a strategic initiative aimed at involving faculty in the national policy agenda as advisors to the public and private sectors through research.

The National Policy Research Fellowship Awards Programme promotes and facilitates the conduct of empirical investigations to inform national development, thereby contributing to enhancing social, civic and economic conditions. Specifically, National Policy Research Fellows are expected to:

- review and evaluate relevant literature in the area of investigation;
- consult with national, regional and international experts as practicable;
- analyse existing policies and programmes;
- conduct an evaluation of proposed project(s);
- submit results to the contacted agency and submit for publication to a journal, including the College Research Journal; and
- share their work with peers at local seminars, academic conferences, and professional organisation events.

With the ultimate goal of informing national policy decision-making, the programme is designed to share research findings with policymakers, programme administrators, leaders in industry and commerce, academics and the general public by means of reports and scholarly publications that are balanced, authoritative and accessible to specialists and non-specialists alike.

The Stanley Wilson Memorial Award for Excellence in Research

Mr. Franklyn R Wilson, CMG, Chairman of The College The Bahamas Council, established an endowment for excellence in research. Named for his brother, the award is intended to encourage research in The Bahamas. The Stanley Wilson Award was presented for the first time at the 2005 Commencement Exercises.
Linda Davis, Ph.D.
Vice President, Research, Graduate Programmes and International Relations

In the more than three decades of The College of The Bahamas’ existence, its faculty, staff and administration have served its teaching mission well. As we complete our remarkable journey to university status, it is critical now that we increase the level of research activity and create international partnerships that will enhance the academic careers of our faculty and students. Toward this end, the Office of Research, Graduate Programmes & International Relations has been mandated to support and facilitate research conducted by faculty at the College and build the desired and necessary international partnerships.

Early successes are evident in this quest. We are enhancing our research profile through work carried out under the auspices of our Field Stations on the island of San Salvador (Gerace Research Centre), on Andros Island (The Bahamas Environmental Research Centre) and through the newly established Marine & Environmental Studies Institute, which incorporates a state of the art tunnel ventilated Poultry Research Unit, at our Gladstone Road Site, a partnership project with the Bahamas Department of Agriculture and generous funding from the Freedom Foundation.

We are encouraged by the research being undertaken by members of faculty through these research units, including the Sustainable Science for Island Life Demonstration Unit for Sciences, Technology and Agricultural Research (DUSTAR) and other projects noted in this booklet. Equally encouraging is contracted research being conducted on behalf of relevant agencies, including The Bahamas Hotel Association, Pan American Health Organisation (PAHO), the International Organisation on Migration, International Labour Organisation, the Bahamas Environmental Science and Technical Commission, The Bahamas Ministry of Finance, The Bahamas Department of Social Services and The Bahamas Ministry of Education, Science & Technology.

Creative efforts, including plays, novels, collections of poetry, musical compositions and historical texts by members of faculty, evidence the many talents that we must continue to nurture and advance along with collaborative efforts being engaged with such governmental agencies as Bahamas National Geographic Information System Department, Fisheries and Tourism, in addition to such private sector partners as the Financial Services Board and non-governmental agencies including Bahamas National Trust, The Nature Conservancy and Andros Conservancy and Trust. We are no less determined to foster the international outreach. We are engaging dialogue and strengthening relations with researchers who visit our Field Stations annually and who share the vision of partnering in joint research projects.

We are expanding the research experience of our undergraduates, taking advantage of the field studies opportunities offered by our field stations. Field Studies Courses, currently available through the School of Sciences and Technology and School of Social Sciences, afford college students the opportunity
to expand their knowledge and skills by selecting their area of study and setting the parameters of their study. It should be noted, too, that the School of English Studies has run, for many years, a field research programme in Linguistics.

Moreover, it is our intention to promote even more vigorously the collaborative ventures between faculty and students that have already yielded so many promising products by way of artistic and musical productions and such publications as the book Potcakes in The Bahamas, a study of roaming dogs in this country.

We must now push the research thrust even more aggressively from within, as we encourage the institution’s faculty to establish and expand research agendas of their own and nurture the thirst for discovery and knowledge creation among our students. Of considerable assistance in this regard will be an expanded outreach of the Stanley Wilson Research Award, the National Policy Research Fellowship Awards Programme and the introduction of the Open Journal System as a medium through which the institution’s Research Journal will be published.

We live in a nation gifted by natural beauty and environs, a people unique in culture and perspective that must be treasured and celebrated through scholarly and creative work. I am pleased to have been assigned such a strategic portfolio and look forward to forging partnerships with our talented faculty, government agencies, civil society and the private sector whom I will have the privilege to work with over the next three years.

We invite the international research community to join us as we build strategic alliances around the world.
Dr Linda Davis
Vice President Research, Graduate Programmes and International Relations
E-mail: research@cob.edu.bs, partnerships@cob.edu.bs
Telephone: (242) 302-4315
Fax: (242) 322-3207

Postal Address
The College of The Bahamas
P. O. Box N-4912
Oakes Field Campus
Thompson Boulevard and Poinciana Drive
Nassau, NP
The Bahamas

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